

IEEE Miami Section Invited Seminar Announcement

“Investing in Information Systems Security: Some Insights on Resource Allocation”

Speaker: Senay Solak John F. Smith Memorial Professor and Department Chair Operations and Information Management Department, Isenberg School of Management, University of Massachusetts Amherst

Date: April 17th, 2023

Lecture: 02:00 PM to 3:00 PM, Room EC-3930



Abstract:

Information security is an inseparable operational component for any business that utilizes information systems. Given this significance, firms are increasingly concerned about the cost-effectiveness of their investments in information security. In this study, we seek to address two key decisions by a firm related to such investments: how much the firm should invest in information systems security, and how this investment should be allocated over different categories of security countermeasures. As part of our findings, we derive a simple functional relationship between the potential total losses of a firm and the optimal amount that the firm should invest in information systems security. Related to this, we find that firms in finance, energy, and technology sectors should invest twice as much in trying to detect information security breaches, then in trying to prevent them. In other industries, information security investments should be split evenly between preventive and detective measures. Moreover, the overall information security budgets for certain types of firms in the former set of industries should be on average 15% higher than other industries, even when the potential total losses under a security breach are the same. As some additional conclusions, we find that the value of these optimal policies is higher for small to medium sized firms, while a gradual investment strategy over a budget period is better than early utilization of the budget at the beginning of this period.

Speaker's Bio:

Dr. Senay Solak is the John F. Smith Memorial Professor and Department Chair in the Operations and Information Management Department in the Isenberg School of Management at University of Massachusetts Amherst. Dr. Solak holds Ph.D. and M.S. degrees in Industrial Engineering and Operations Research from Georgia Institute of Technology, and a B.S. degree in Electrical Engineering from the U.S. Naval Academy. Dr. Solak's main research interests involve portfolio management for technology and capital investment projects, with a focus on sustainable and nonprofit operations management. His methods focus on creating value for organizations through better management of uncertainty in such problems. Dr. Solak's research has been funded by NSF, NASA, FAA, and other industry organizations, and his work has appeared in various top-tier journals and conference proceedings. More information is located at <https://www.isenberg.umass.edu/people/senay-solak>

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